

Steven C. Quay  
Application No.: 09/587,116  
Page 3

PATENT

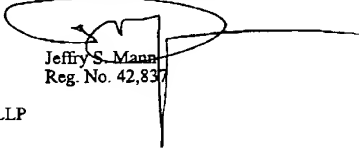
*Johnson*, 194 USPQ 187 (CCPA 1977). In *Johnson*, the Court held that it was legitimate for an Applicant to amend a claim to remove a disclosed species, thereby claiming less than the full scope of his disclosure, since it is up to the inventor to decide what scope of protection he will seek.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

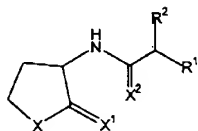


Jeffrey S. Mann  
Reg. No. 42,837

TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8<sup>th</sup> Floor  
San Francisco, California 94111-3834  
Tel: (415) 576-0200  
Fax: (415) 576-0300  
JSM:kad  
SF 1294704 v1

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A compound having the structure:



(I)

wherein,

R<sup>1</sup> is a member selected from —H, —OH, and (=O);

R<sup>2</sup> is a member selected from [H], reactive functional groups, alkyl groups terminally substituted with a reactive functional group and internally substituted alkyl groups terminally substituted with a reactive functional group;

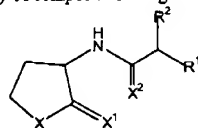
X is a member selected from —O—, —S— and —NH—; and

X<sup>1</sup> and X<sup>2</sup> are members independently selected from O and S.

CLAIMS 28-108 HAVE BEEN CANCELED.

CLAIMS PENDING AFTER AMENDMENT

1. (Amended) A compound having the structure:



(I)

wherein,

R<sup>1</sup> is a member selected from —H, —OH, and (=O);

R<sup>2</sup> is a member selected from reactive functional groups, alkyl groups terminally substituted with a reactive functional group and internally

7 substituted alkyl groups terminally substituted with a reactive functional  
8 group;

9 X is a member selected from —O—, —S— and —NH—; and

10  $X^1$  and  $X^2$  are members independently selected from O and S.

1 2. The compound according to claim 1, wherein  $R^2$  is an internally  
2 substituted alkyl group terminally substituted with a reactive functional group.

1 3. The compound according to claim 2, wherein the alkyl group is  
2 internally substituted with a functional group that is a member selected from —OH, (—O) and  
3 combinations thereof.

1 4. The compound according to claim 1, wherein the reactive functional  
2 group is a member selected from —OR<sup>3</sup>, —NHR<sup>4</sup>, —COR<sup>5</sup>, —SH and  
3 —CH<sub>2</sub>X<sup>3</sup>

4 wherein,

5 —OR<sup>3</sup> is a member selected from hydroxy, alkyl sulfonate and aryl sulfonate  
6 groups;

7 R<sup>4</sup> is a member selected from H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> substituted alkyl, aryl and  
8 substituted aryl groups;

9 R<sup>5</sup> is a member selected from H, X<sup>3</sup> and —OR<sup>6</sup>, wherein R<sup>6</sup> a member  
10 selected from alkyl, substituted alkyl, aryl, substituted aryl, heteroaryl,  
11 substituted heteroaryl, heterocyclyl and substituted heterocyclyl groups;  
12 and

13 X<sup>3</sup> is a halogen.

1 5. The compound according to claim 1, wherein the compound is a single  
2 stereoisomer.

1 6. The compound according to claim 4, wherein R<sup>3</sup> is

Steven C. Quay  
Application No.: 09/587,116  
Page 6

PATENT



(V)

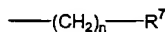
wherein,

$\text{R}^8$  is a member selected from alkyl, substituted alkyl, aryl and substituted aryl groups.

7. The compound according to claim 1, wherein the alkyl and the internally substituted alkyl groups are members selected from  $\text{C}_1\text{-C}_{20}$  saturated straight-chain,  $\text{C}_1\text{-C}_{20}$  saturated branched-chain,  $\text{C}_1\text{-C}_{20}$  unsaturated straight-chain,  $\text{C}_1\text{-C}_{20}$  unsaturated branched-chain alkyl and internally substituted alkyl groups.

8. The compound according to claim 7, wherein the alkyl and internally substituted alkyl groups are members selected from  $\text{C}_3\text{-C}_{10}$  saturated straight-chain,  $\text{C}_3\text{-C}_{10}$  saturated branched-chain,  $\text{C}_3\text{-C}_{10}$  unsaturated straight-chain,  $\text{C}_3\text{-C}_{10}$  unsaturated branched-chain alkyl and internally substituted alkyl groups.

9. A compound according to claim 1, wherein  $\text{R}^2$  has the structure:



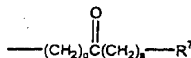
(III)

wherein,

$\text{R}^7$  a reactive functional group; and  
 $n$  is a number from 1 to 20, inclusive.

10. The compound according to claim 9, wherein  $n$  is a number from 2 to 9, inclusive.

11. A compound according to claim 1, wherein  $\text{R}^2$  has the structure:



(IV)

wherein,

$\text{R}^7$  is a reactive functional group; and  
 $q$  and  $s$  are numbers independently selected from 1 to 20, inclusive.

Steven C. Quay  
 Application No.: 09/587,116  
 Page 7

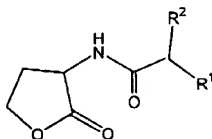
PATENT

12. The compound according to claim 11, wherein  $s$  is a number from 2 to 9, inclusive.

13. A pharmaceutical formulation comprising a pharmaceutically acceptable carrier and a compound according to claim 1, said reactive functional group of said compound being covalently bound to a biologically active agent.

14. The pharmaceutical formulation according to claim 13, wherein said biologically active agent is a member selected from antibiotics, immune stimulators and combinations thereof.

15. A compound having the structure:



(II)

wherein,

$R^1$  is a member selected from H, OH, and (=O); and

$R^2$  is a member selected from H, reactive functional groups, alkyl groups terminally substituted with a reactive functional group and internally substituted alkyl groups terminally substituted with a reactive functional group, with the proviso that when  $R^2$  is —OH,  $R^1$  is a member selected from OH, and (=O).

16. The compound according to claim 15, wherein the reactive functional group is a member selected from —OR<sup>3</sup>, —NHR<sup>4</sup>, —COR<sup>5</sup>, SH and CH<sub>2</sub>X<sup>3</sup>

wherein,

—OR<sup>3</sup> is a member selected from hydroxy, and a species such that —OR<sup>3</sup> is a leaving group;

$R^4$  is a member selected from H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> substituted alkyl, aryl and substituted aryl groups;

Steven C. Quay  
Application No.: 09/587,116  
Page 8

PATENT

$R^5$  is a member selected from H, halogen and  $-OR^6$ , wherein  $R^6$  is species  
such that  $-OR^6$  is a leaving group; and  
 $X^3$  is a halogen.

17. The compound according to claim 16, wherein  $R^3$  is



(V)

wherein,

$R^8$  is a member selected from alkyl, substituted alkyl, aryl and substituted aryl  
groups.

18. The compound according to claim 16, wherein  $R^6$  is a member  
selected from alkyl, substituted alkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl,  
heterocyclyl and substituted heterocyclyl groups.

19. The compound according to claim 15, wherein the alkyl and the  
internally substituted alkyl groups are members selected from  $C_1$ - $C_{20}$  saturated straight-chain,  
 $C_1$ - $C_{20}$  saturated branched-chain,  $C_1$ - $C_{20}$  unsaturated straight-chain,  $C_1$ - $C_{20}$  unsaturated  
branched-chain alkyl and internally substituted alkyl groups.

20. The compound according to claim 19, wherein the alkyl and internally  
substituted alkyl groups are members selected from  $C_5$ - $C_{10}$  saturated straight-chain,  $C_5$ - $C_{10}$   
saturated branched-chain,  $C_5$ - $C_{10}$  unsaturated straight-chain,  $C_5$ - $C_{10}$  unsaturated branched-  
chain alkyl and internally substituted alkyl groups.

21. A compound according to claim 15, wherein  $R^2$  has the structure:



wherein,

$R^7$  is a reactive functional group; and  
 $n$  is a number from 1 to 20, inclusive.

Steven C. Quay  
Application No.: 09/587,116  
Page 9

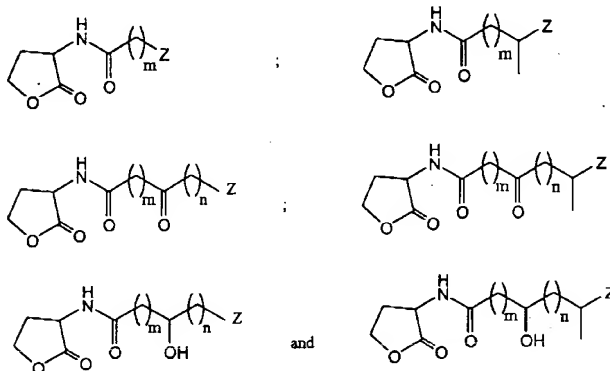
**PATENT**

22. The compound according to claim 21, wherein n is a number from 2 to 9, inclusive.

23. The compound according to claim 15, wherein R<sup>2</sup> is a member selected from the group consisting of —COOH, —OH, —NH<sub>2</sub>, and —SH.

24. The compound according to claim 21, wherein R<sup>7</sup> is a member selected from the group consisting of —COOH, —OH, —NH<sub>2</sub>, and —SH.

25. A compound having a structure that is a member selected from:



wherein,

m is a number selected from 1 to 20, inclusive;

n is a number from 0 to 20, inclusive; and

Z is a reactive functional group.

26. The compound according to claim 25, wherein m and n are numbers independently selected from 2 to 9, inclusive.

27. The compound according to claim 25, wherein Z is a member selected from —NH<sub>2</sub>, —COOH, —SH, and —OH.

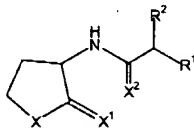
SF 1294704 v1

Steven C. Quay  
Application No.: 09/587,116  
Page 4

PATENT

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A compound having the structure:



(I)

wherein,

R<sup>1</sup> is a member selected from -H, -OH, and (=O);

R<sup>2</sup> is a member selected from [H], reactive functional groups, alkyl groups terminally substituted with a reactive functional group and internally substituted alkyl groups terminally substituted with a reactive functional group;

X is a member selected from -O-, -S- and -NH-; and

X<sup>1</sup> and X<sup>2</sup> are members independently selected from O and S.

CLAIMS 28-108 HAVE BEEN CANCELED.